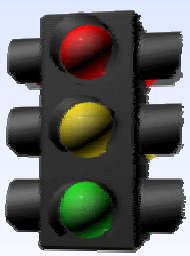
SESSION 2.4

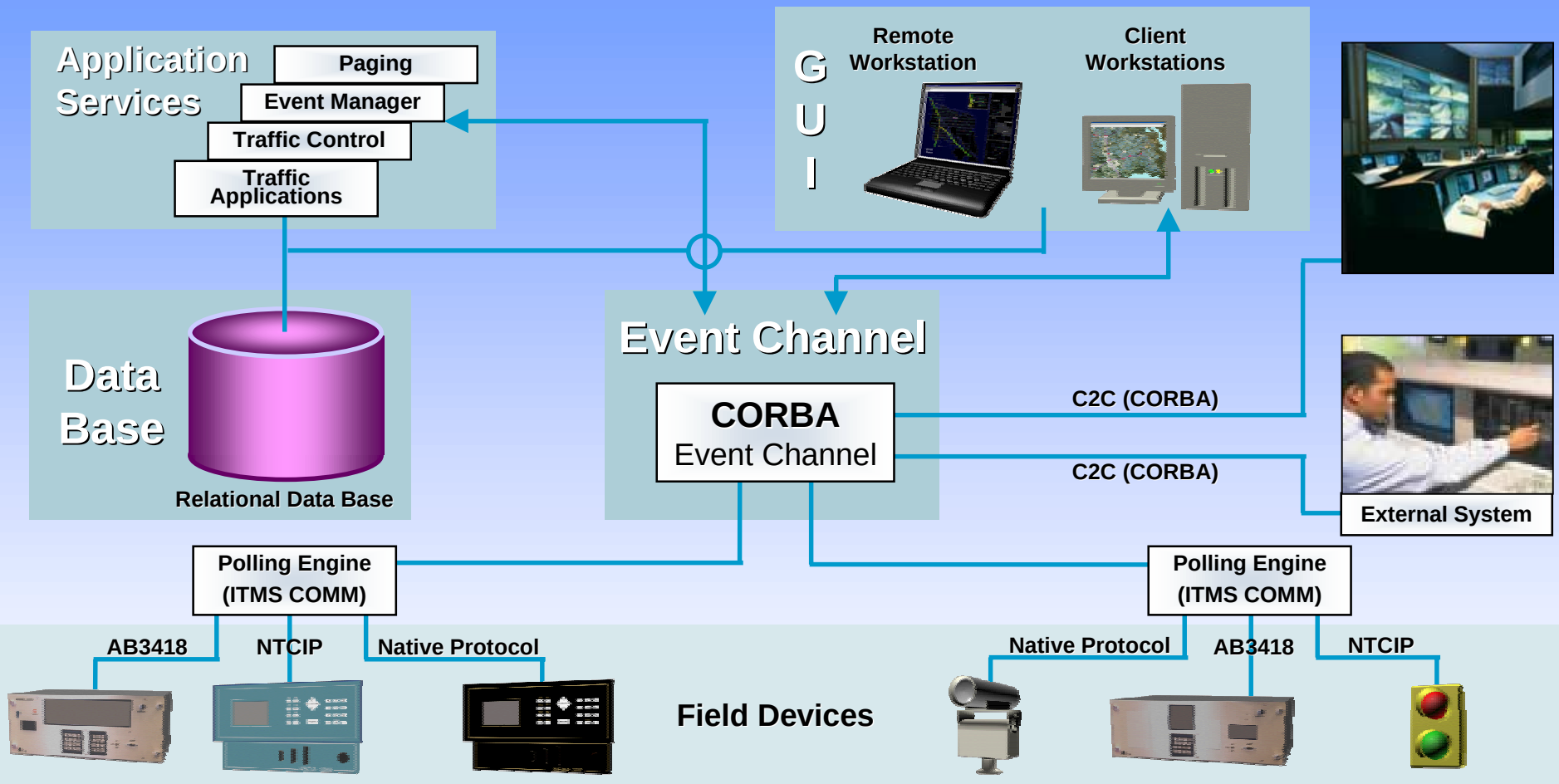
2070's @
2002 Winter Olympics
Salt Lake City



Craig Gardner

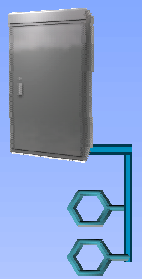
Salt Lake City
ATMS

ATMS Architecture



SLC ATMS
2070 APPLICATIONS

- **Freeway Surveillance**
- **Ramp Metering**
- **Light Rail Transit (LRT) Signal Priority**



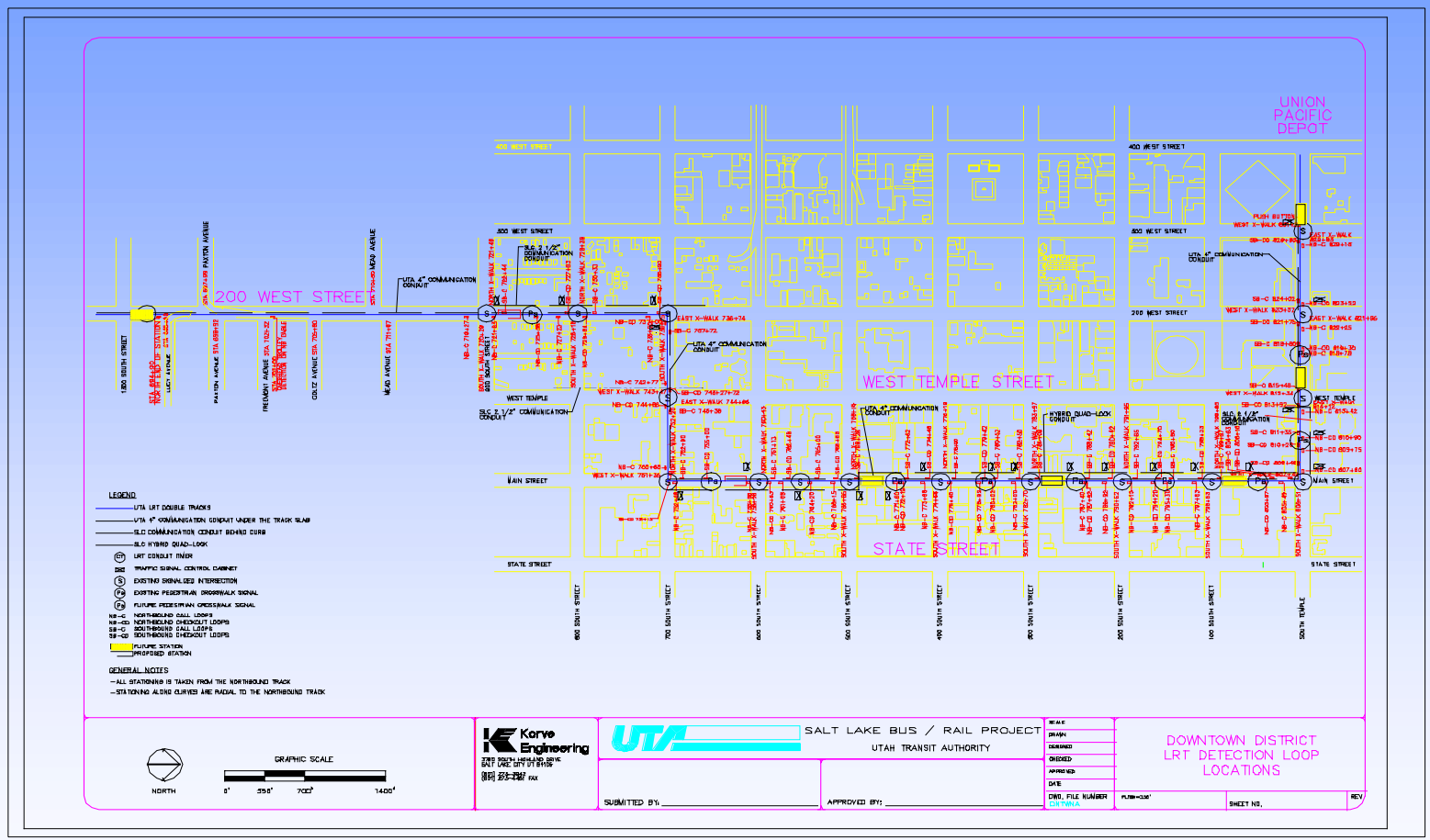
Freeway Surveillance

- **Approx. 250 Mainline Stations**
- **Lanes Instrumented w/ Inductive Loops**
- **20 or 30 second Polling by Central ATMS**
  - Lane Volumes, Occupancies & Avg. Speeds
- **Data Bin Processing**
  - Speed Distributions
  - Vehicle Length Distributions
  - 5 min to 24 hr periods

RAMP METERING

- Approx. 25 Currently Active Meters
- Traffic Responsive, TOD, or Central Algorithm Rate Selection
- NTCIP Compliance (Objects & Comm.)

SLC LRT Signal Priority



1300 South Station

700 S & 200 W – Around the Corner

Main St.

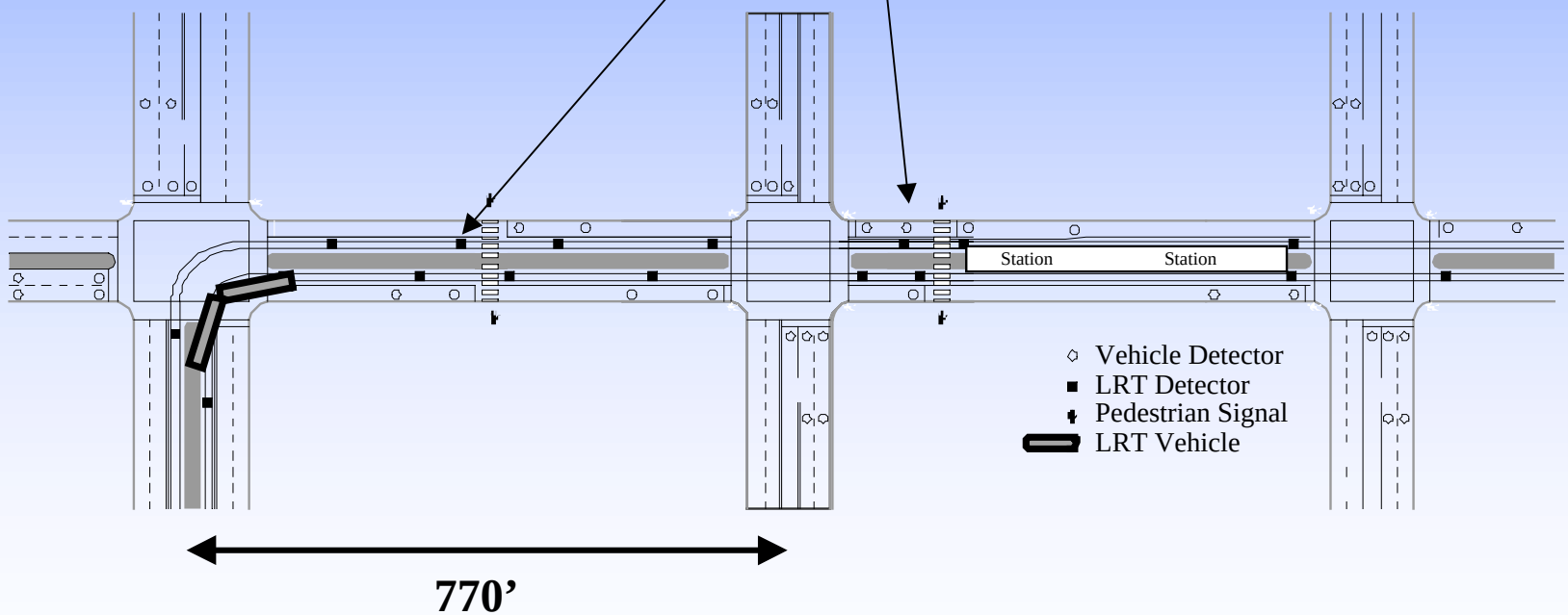
LRT ATMS Requirements

- LRT progression along route (both directions)
- Maintain coordinated signal operations
- Provide LRT queue jump at start of phase
- LRT Signals - flash GO for clearance (6 flash + 3 RED)
- Provide “greenband” countdown timers at end-stations
- Operate as an integrated component of ATMS
- Utilize agency standard cabinets/equipment

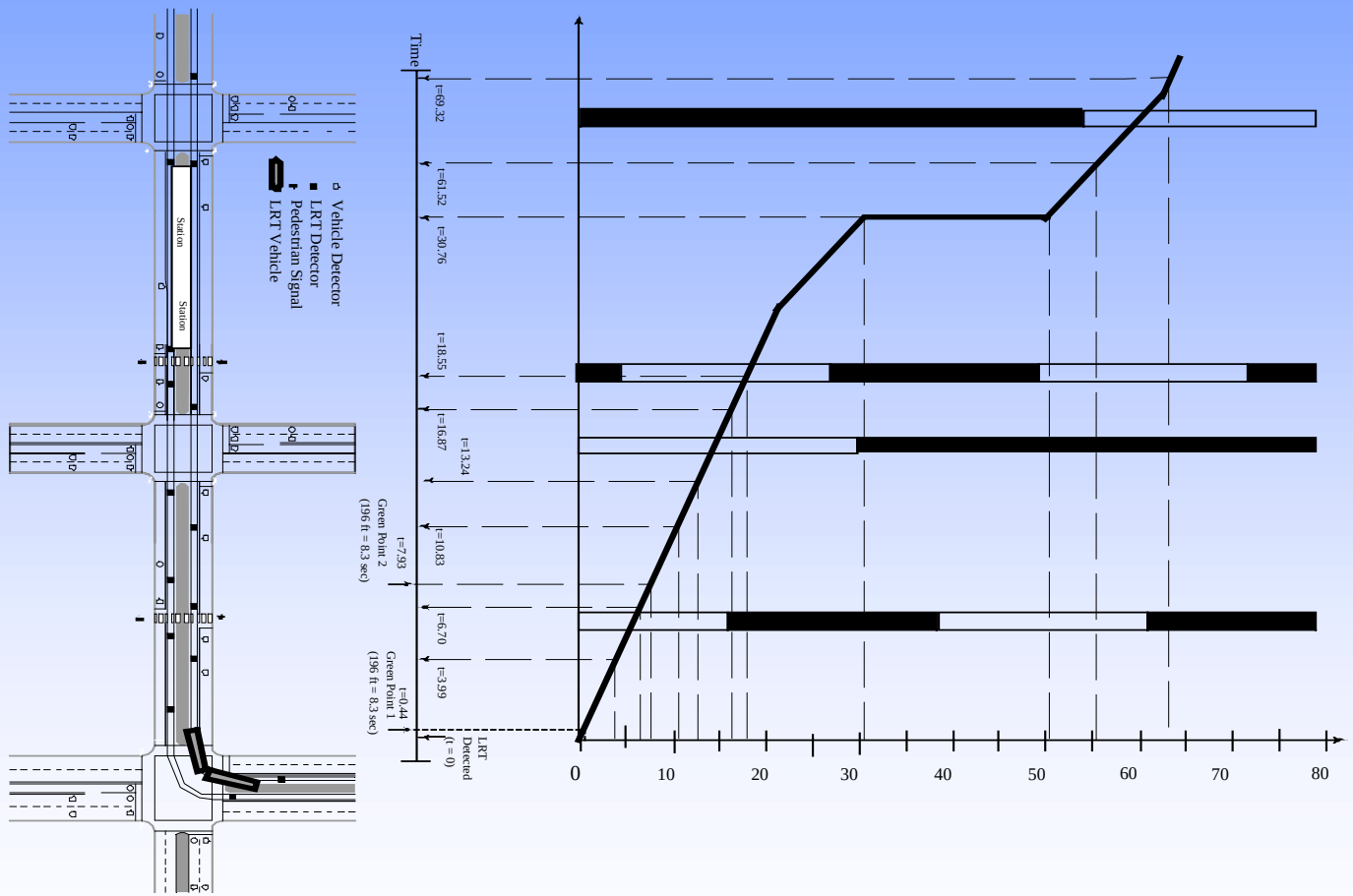
LRT ATMS Design Challenge

25mph LRT vehicle

Signalized Ped Crosssings



Integrating with Signal Control



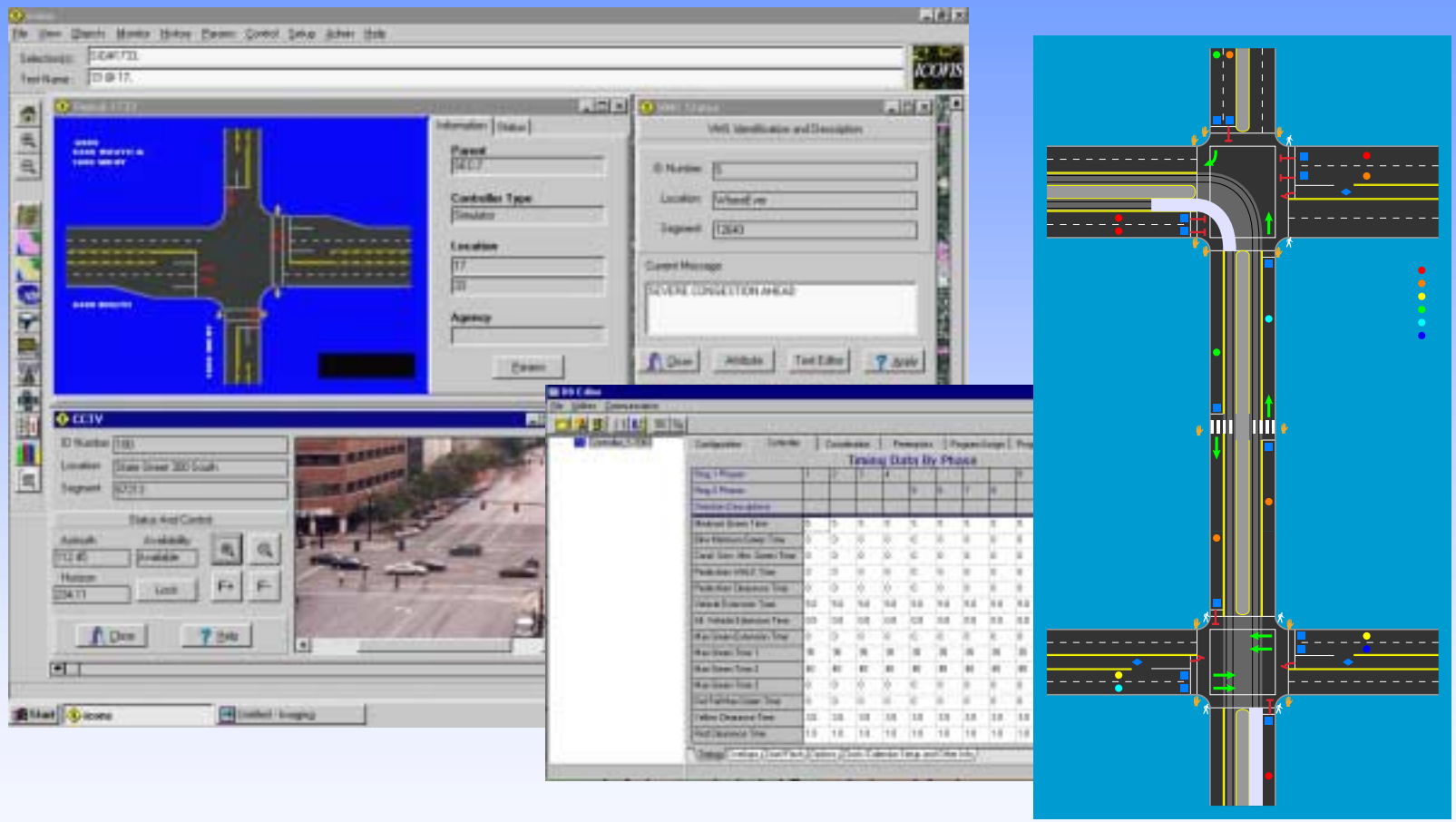
LRT ATMS Design Issues

- **Need prediction to prepare signal before train arrives at “Green Point”**
- **Need controller logic that can provide LRT service within coordinated signal timing**
- **Integrate into UDOT/SLC ATMS**

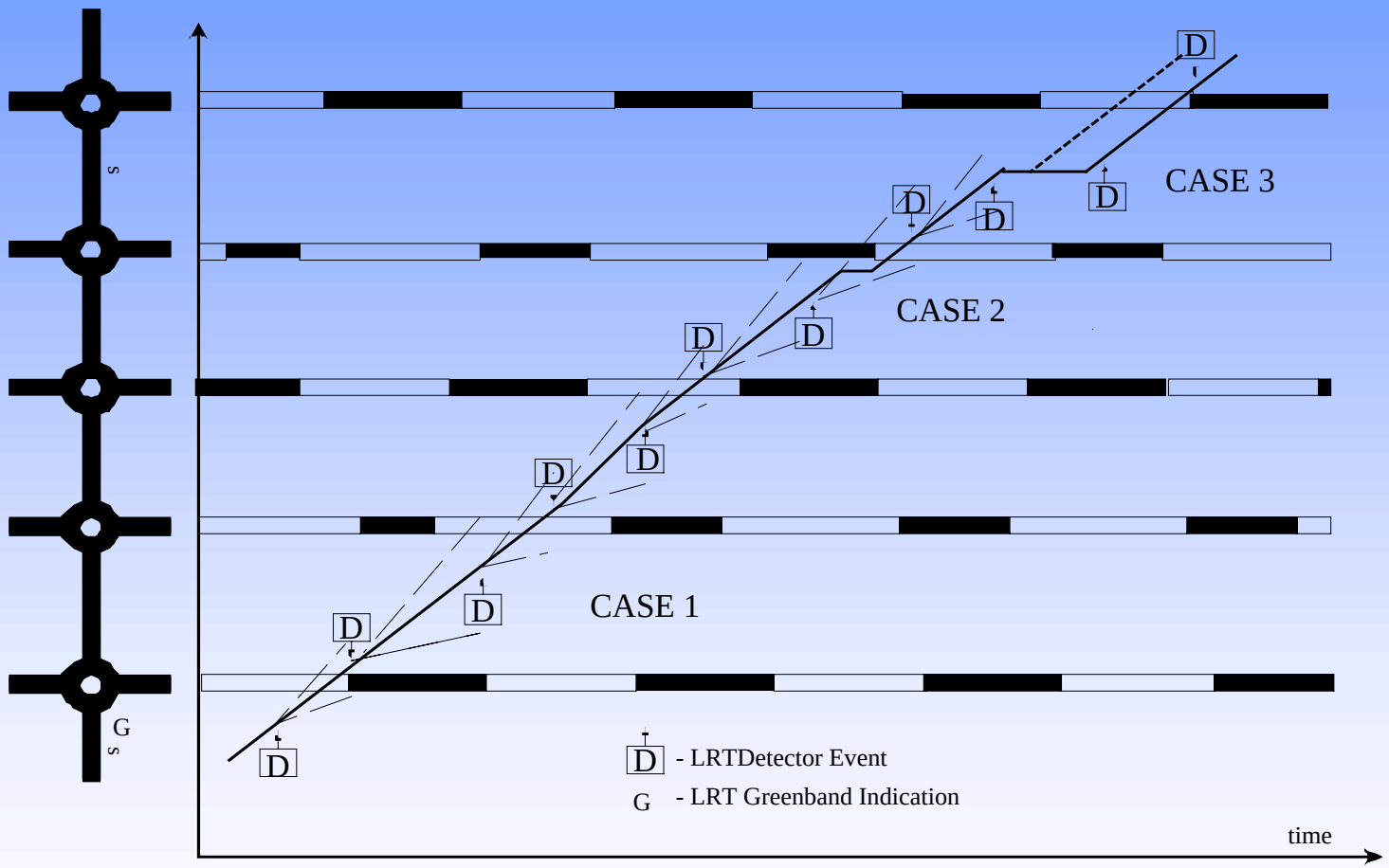
LRT ATMS Design Approach

- **Central ATMS Enhancements**
  - Operator Decision Support
    - Operations Monitoring
    - Controller Programming
  - LRT Priority Service
    - Prediction of LRV Position
    - Detector Fault Monitoring
- **Intersection Controller Enhancements**
  - Priority Timing
    - Progression
    - Coordination
    - Queue Jump
  - Existing TS-2 Cabinets
  - New 2070 ATC Controllers

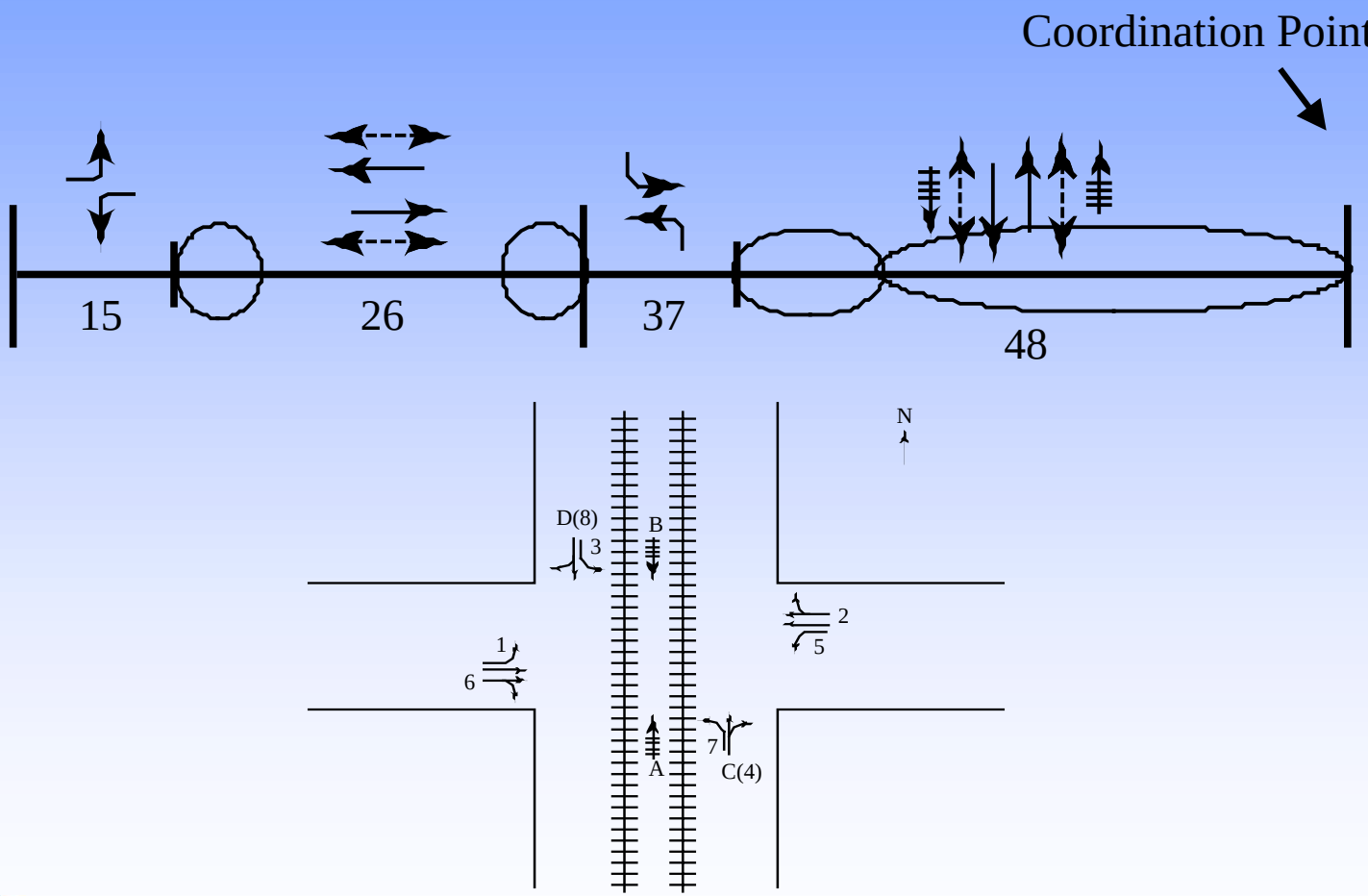
ATMS Workstation



LRT Path Prediction (LRT Priority Service)



Signal Timing -
LRT Service Opportunities



LRT Results

- **Developed an integrated system to provide traffic signal priority for LRT operations in downtown Salt Lake City**
- **Priority provided within coordinated signal operations**
- **LRT operations began revenue service on December 6, 1999**